EDINA GOES GREEN: A COMMUNITY EDUCATION PROJECT IN LOW-INPUT LAWN CARE

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ABSTRACT

The objectives of the Edina Goes Green project were to design and implement an educational campaign on low-input lawn care, measure its effectiveness, and use the information gained to develop a model education plan that other communities could use. Residents of Edina, MN initiated the project by expressing an interest in reducing the amounts of chemical inputs (fertilizers and pesticides) used on residential lawns. The program's educational goal was to bring about a change in Edina residents' lawn care by teaching about proper timing and rate of application of all lawn inputs, as well as cultural techniques for producing a healthy lawn. The lawn care techniques taught in the program were drawn from the Minnesota Extension Service publication, LILaC: Low Input Lawn Care (Mugaas, 1995).

The educational campaign consisted of several parts. Six informational articles were published in Edina's AboutTown quarterly community magazine and the local SunCurrent newspaper. Nineteen demonstration sites were established in which volunteer homeowners worked with Master Gardener mentors learning low-input lawn care techniques. A WWW page containing information about lawn care and the project itself was posted, and a free public seminar entitled Lawn Care for the 90s: A Pinch Not a Pound was held in March, 1996.

To measure the effectiveness of the program, two surveys were distributed, each to a random sample of Edina residents. The first survey was mailed at the start of the project to 800 residents. The second survey was mailed a year later, at the project's end. This survey was sent both to the same group that received the first survey and also to a new sample of 800 more residents. The surveys measured lawn care knowledge and current practices, attitudes concerning pesticide use and the environment, as well as the effectiveness of the Edina Goes Green program. By the end of the year-long project, 59% of respondents who received both surveys and 36% of respondents who received only the second survey indicated that they were at least vaguely familiar with the project. Of these, for both groups of respondents, the informational articles were selected as the most utilized educational tool (66% and 44%, respectively). Recommendations for other community educational programs are based on the survey results as well as feedback from the Master Gardener and Demonstration Site participants and the residents of Edina who initiated and helped carry out the project.

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Edina Goes Green Part I: A Model for Low-Input Lawn Care Community Education

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Summary. A year-long community education project was conducted in Edina, Minnesota to teach residents about low-input lawn care techniques. Informational articles, a www page, a public seminar, and demonstration sites were the major strategies employed by the project. Each of these teaching methods had a specific objective for influencing the lawn care knowledge and/or practices of Edina's residents. Feedback was gathered at the end of the project to measure the effectiveness of the various teaching methods. Recommendations are given describing our results along with a plan that other communities interested in undertaking similar projects can use.

Many municipalities have ordinances concerning lawn care, height of grass, setbacks, and even the type of plants permitted (Balbach and Balbach, 1998). Increasingly, these ordinances have been challenged as homeowners become concerned about the environmental effects of a traditional lawn (Diekelmann and Bruner, 1978; Gillespie, 1990; Hanchek, 1994). Although the numerous benefits of turf have been published (Beard and Green, 1994; Leslie and Knoop, 1989) there remains a perception of inputs, especially pesticides and fertilizers, as having a negative environmental impact.

In an effort to teach low-input lawn care, Edina, Minnesota (a suburb of Minneapolis) community leaders and concerned citizens initiated a community educational program, called Edina Goes Green (EGG).

The University of Minnesota Extension Service provided the base of information about low-input lawn care and coordinated the EGG program, which ran from March 1995 through June 1996. The primary source of information for the program was the Minnesota Extension publication, *LILaC: Low-Input Lawn Care* (Mugaas, 1995). EGG used a variety of educational methods, each with its own goal of affecting the knowledge, attitude, and/or practices of Edina residents toward the task of lawn care. This article outlines the EGG program, including its background, resources, strategies employed for meeting its goals,

and a critique of the teaching methods used. Concluding information offers recommendations to other communities interested in low-input lawn care.

Prior to the start of EGG, Edina's City Council had voted to change the way the City managed the turf in its public parks. In February 1995 they adopted a new Turf Management Plan that would eliminate or severely reduce the use of lawn chemicals on public areas (Edina Park and Recreation Department, 1995). Residents who had supported this change then began to think of ways to educate the community as a whole about the benefits of low-input lawn care. It was thought that a greater overall understanding of this approach to lawn care would make for wider acceptance of the City's Plan and could also lead to a reduced use of lawn chemicals on private property.

In EGG, resources available for the program were closely linked with community support. EGG was unique in that it was *initiated* by Edina residents. Members of the Edina League of Women Voters, the Edina Community Health Services Advisory Committee (ECHSAC), and other concerned citizens were instrumental in forming a partnership between the City of Edina and Extension, and in applying for funding for the program. The EGG committee that formed from these groups applied for and received a Sustainable Urban Landscape Education Program grant from the University of Minnesota. Thus the major material and financial resources for the project came about as a direct result of community involvement and support.

Key factors in a successful community educational program include identifying financial and material resources available, gathering support within the community, identifying clear and measurable objectives of the educational program, and planning a schedule and strategies to meet those objectives using the available resources.

The grant provided funding to hire a coordinator for the project for one year. This position involved organizing, planning, and implementing an educational campaign. The goal was to make use of the available resources to develop an educational program that would reach a wide audience at a variety of levels within the community. Extension

programs in other areas have shown this to be a successful approach to community education (Aveni and Hartung, 1997). Educational materials were designed either to provide information on a large scale or to give more individualized instruction on a smaller scale. In this way there was a vast difference in the level of input required by the program participants. Members of the general public, who may or may not have an active interest in lawn care, received publications with informational articles on low-input lawn care techniques. It was hoped that at best these articles could inspire more active participation in the program, or at least they could increase the lawn care knowledge of many Edina residents. Those residents already with an active interest in lawn care had other educational opportunities as well. A public seminar and a demonstration site program were offered for those who were willing to devote more time and energy to the program. The seminar and demonstration site program were intended to attract participants who would probably be more likely to change their lawn care practices as a result of low-input lawn care instruction. The overall goal of EGG was community education. This it sought to conduct on a variety of levels, to provide information to the community as a whole and offer programs for interested residents to learn more.

The educational techniques that EGG used are evaluated below, including the objective for each and its success in meeting that objective. At the start and end of the program, surveys were distributed to random households in Edina asking questions about lawn care knowledge and practices. The final survey also asked questions about the respondent's familiarity with the EGG program (Table 1). The complete survey results have been published separately (Carpenter and Meyer, 1998a).

Table 1. Frequencies of survey responses to questions about familiarity with the EGG program.

Survey Question	Frequency (%)								
Rate your familiarity with the EGG program.	Very Familiar	Somewhat Familiar	Vaguely Familiar	Not At All Familiar					
	Articles in Edina's AboutTown Magazine	Articles in Edina's SunCurrent Newspaper	EGG's Internet WWW Page	Public Seminar	Demon-stration Sites	Word of Mouth	City Hall Open House	Other Sources (Write-in Response)	Not Familiar With the Program
Which of the following sources used as educational tools by EGG are you familiar with?	21.3	21.9	1.1	1.0	0.7	5.5	0.6	1.8	46.1

Published Articles

Seven informational articles were published in two Edina publications (Table 2). The *AboutTown* magazine is a quarterly publication distributed free to Edina residents. Edina's Park and Recreation Department is responsible for producing the magazine and invited EGG to submit articles as a service to the community. Another community publication distributed free to Edina residents, the weekly *SunCurrent* newspaper, also ran articles on EGG. Members of the EGG committee were instrumental in contacting the newspaper and in supplying three informational articles.

Table 2. Articles published by or about EGG educational program, March 1995 - June 1996.

Publication	Date	Title
AboutTown	Summer 1995	A Year-round Guide to Home Lawn Care, pt. 1
AboutTown	Autumn 1995	A Year-round Guide to Home Lawn Care, pt. 2
AboutTown	Autumn 1995	Edina Goes Green
SunCurrent	Aug. 21, 1995	'U' Program Helps Edina 'Go Green'
SunCurrent	May 14, 1996	Answers to Common Questions on Lawn Fertilizers
SunCurrent	May 21, 1996	Knock Out Weeds Not Environment
SunCurrent	May 28, 1996	Tips for Your Lawn to Make It In the Shade

The objective of publishing informational articles was to educate Edina residents as a whole. The articles were distributed to all residents and were purely informational, requiring no effort on the part of the recipient other than choosing whether or not to read them.

Survey results indicated that these articles were the most widely used educational tool of EGG's program. As Table 1 shows, of those respondents who knew about the EGG program, more were familiar with the *AboutTown* and *SunCurrent* articles than any other aspect of the program. But what effect did these articles have on lawn care in the community? A comparison of survey results from before and after the program revealed little change in the lawn care knowledge or practices of residents (Carpenter and Meyer, 1998a). This would indicate that this number of informational articles alone, even though

widely read, were not influential in changing the lawn care practices in the community within the time frame of this program.

Internet Web Page

An internet web site was posted in February 1996. The objective of the site was to provide up-to-date information about the program. The web site contained information, copies of the published articles, demonstration site addresses, and results from the first survey. The web address was advertised at the end of the SunCurrent newspaper articles.

Like the published articles, the web site was primarily an informational teaching tool. It did, however, require more effort on the part of those using it than did the *AboutTown* or *SunCurrent* articles. The web site information was not simply delivered to the public at large, but required the participant to have access to a computer with internet service, and to have the desire to look up the information on their own. This, combined with the fact that EGG's web site was not posted until halfway through the program and was not actively advertised until late in the program, made this teaching tool relatively ineffective in reaching Edina residents. Only about 1% of residents were familiar with the web page by the end of the program (Table 1).

This result should not rule out the use of web pages in community education projects of this type. With more advertising and planning, a web page can be a relatively easy way to make available large amounts of information. It also has the capacity for expansion through e-mail to become a mode of communication between participants and project organizers. For projects with limited financial resources, posting information on the internet can also be quite cost effective. EGG's site was posted on the internet at no cost as a link from the Department of Horticultural Science's web site at the University of Minnesota.

Public Seminar

A free public seminar held in March 1995 was titled "Lawn Care for the 90's: A Pinch Not a Pound" and featured two speakers. The seminar opened with information from

a Waste Prevention Specialist from the Minnesota Office of Environmental Assistance. The primary speaker was a turf specialist and consultant hired by the City of Edina to assist in implementing their new Turf Management Plan. Since the event was tied in to the City, it was hosted and funded by Edina's Park and Recreation Department.

The objectives of the seminar were to provide professional information on lawn care and to give those attending an opportunity to ask questions pertaining to their own lawns. About 100 people attended the seminar and the audience response to the program was overwhelmingly positive. This event, though, required much more effort on the part of the participants than did the published articles or the web site. It is likely that only those residents already interested in lawn care would be motivated to show up. In that respect, only a small number (about 1%) of Edina residents were familiar with this event as a part of EGG's educational campaign (Table 1).

Arrangements for the seminar actually began before the EGG program had been fully planned. Community members of the EGG committee took the initiative in planning and hosting this event, but since it took place so close to the start of the EGG program, there was not much opportunity to tie it in with other EGG educational events. There was no way to measure the effect this program had on the future lawn care practices of those in attendance, although given the positive feedback, the audience's interest in the subject matter, and the large number of questions that were asked following the presentation, it seems likely that the seminar would have had some impact on the lawn care practices of the audience. With this in mind, events such as this one, especially if they can be incorporated into the educational plan, are still a valuable component for community education. Public seminars have the potential to reach a relatively large number of people who already have an interest in the subject matter. There is a good possibility that the knowledge and/or practices of those attending will be affected.

Demonstration Sites

The last major educational tool that EGG used was a demonstration site project. This was a year-long program that paired Master Gardeners (MG) with volunteer homeowners. MGs, volunteers trained by the Extension Service, were recruited to work one-on-one with homeowners teaching low-input lawn care techniques. Members of the EGG committee from the League of Women Voters recruited the homeowner volunteers. Nineteen households and thirteen MGs participated in the year-long program. For complete information on the demonstration sites, see Carpenter and Meyer, 1998b.

This program component had two objectives: to provide an individualized learning experience for the volunteers, and to provide a public example of low-input lawn care for other Edina residents to see. For the volunteers, this was the most intensive teaching method EGG used. It required a year-long commitment and the desire to want to learn about and possibly implement changes in their lawn care practices. Obviously, this program would not be attractive to all residents, and the number of participants was limited by the number of MGs interested in helping to run the program.

The project was advertised and participants' addresses published in the *AboutTown* and *SunCurrent* publications and on EGG's web page. However, simply inviting Edina residents to drive by the sites was not sufficient for meeting the goal of providing a public example of low-input lawn care (Table 1). Fewer than 1% of Edina residents were familiar with this educational tool by the end of the program. More publicity, identifying the sites with informational signs, and offering more events, such as an open-house, might increase its appeal to the general public.

The Demonstration Site program was more successful in meeting its goal as a one-on-one teaching tool. Feedback and survey results from program participants indicate that this was the most influential of EGG's tools in promoting a change in both the knowledge and lawn care practices of the participants (Carpenter and Meyer, 1998b). On questionnaires, 75% of program participants indicated that they had learned something about lawn care that they didn't know before the program, and 75% also said that they had

changed the way they cared for their lawn as a result of what they learned. The commitment of time and energy on the part of the participant for a program such as this seems to pay off with an increase in the tangible effects of the program.

Other Educational Tools

Other educational methods, intentional and not, also had some influence on the program. EGG hosted an informational booth at an Open House event held at Edina's City Hall in February 1996. The booth was tended by a member of the EGG committee. At the event, fliers about EGG were distributed and visitors had a chance to ask questions about the program. As the survey results indicate (Table 1), this was not a highly influential event throughout the community. It was, however, an opportunity for members of the EGG committee to take a more active role in promoting the program. The committee member handing out fliers came away from the event with the sense that he had made a valuable contribution to the program. Such a sense of satisfaction, a sense that each participant has a significant role to play in the program, may be essential for ongoing success.

Word-of-mouth, as the survey results indicate, had a relatively broad influence in the community. It was not intended as a part of EGG's plan, but most likely came about as a result of the high degree of community-member participation in the project. Members of the League of Women Voters, ECHSAC, the City's Park and Recreation Department, and the Demonstration Site participants were all involved in promoting the program and motivating others through interactions with friends and neighbors. This is one indication of the important role that community support for a project can play in its success.

Recommendations for Other Communities

1) Identify resources available within the community. Local newspapers or other publications, community action groups, garden clubs, and city government organizations can provide support, publicity, and resources for educational programs.

2) Identify financial resources. Grants and/or funding sources from community organizations can help with the cost of labor, mailings, printing costs, supplying and

distributing brochures and fact sheets, and other costs. The amount of funding available will directly affect the types of educational programs that can be offered.

3) Involve local citizens in an active role. Offer residents the opportunity to help organize and implement programs. Such involvement can increase the program's popularity and may encourage continuation of the program beyond the established time-frame.

4) Outline measurable goals and objectives. For each educational program, determine the desired outcome, whether a change in participant's knowledge or practices. Use periodic feedback from the participants to determine if the project is on track, and be willing to change programs that are not working.

5) Offer a wide variety of opportunities with varying levels of commitment. Those with lower requirements, such as newspaper articles, will be able to reach more people, but those with higher requirements can have more influence for changing the lawn care practices of the participant.

6) Have Demonstration Sites with widely publicized public open house days. Identify the Sites with informational signs, and have homeowners and MGs on hand to answer questions from visitors.

7) If possible, continue the program for two years. Repetition is important, especially where low involvement is concerned. A longer program will also facilitate measuring *lasting* change in the community.

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Edina Goes Green Part II: A Survey of Consumer Lawn Care Knowledge and Practices

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Additional Index Words.

Summary. Homeowners in Edina, Minnesota were surveyed in conjunction with a low-input lawn care community education project. Surveys were sent at the start and finish of the year-long project, and asked questions pertaining to the respondent's lawn care knowledge, practices, and environmental attitude toward lawn inputs. The results of survey responses from before the program, compared with those after the program show overall that homeowners' lawn care did not change significantly by the end of the educational campaign. Responses were useful, though, in determining which areas to target future educational efforts. For example, while over 80% of respondents were aware of the benefits of leaving mowed clippings on the lawn, fewer than 6% knew how much fertilizer is needed yearly for a medium maintenance lawn.

Two sets of surveys were distributed to random samples of homeowners in Edina, Minnesota as part of a year-long, low-input lawn care educational campaign. Residents of Edina initiated the lawn care project by expressing concern over what they perceived to be high levels of lawn chemicals being used by homeowners and the city.

Edina, a south-western suburb of Minneapolis, has a population of approximately 46,000 people, with over 19,000 households. About 15,000 households are owner-occupied (South Hennepin Regional Planning Agency, 1993). The City estimates that about 600 acres of public land and 4,850 acres of private land are planted with turfgrass. In February of 1995 Edina enacted a Turf Management Plan for public parks that would ban the use of lawn pesticides on playgrounds and severely limit their use on other public areas (Edina Park and Recreation Department, 1995). The residents of Edina who supported the city's new turf plan realized that private homeowners would also need to limit their lawn inputs if the community as a whole was to adopt these changes. These residents teamed up with Edina City Hall and the University of Minnesota Extension Service to develop an educational campaign aimed at teaching low-input lawn care techniques to Edina's residents. This educational project became known as Edina Goes Green (EGG) and ran from March 1996 through June 1997.

The EGG program used a variety of educational tools to teach low-input lawn care techniques, and is reported in entirety elsewhere (Carpenter and Meyer, 1998a). The survey component of the project contained three sections that will be reported here: 1) lawn care knowledge and practices, 2) environmental attitudes toward lawn care, and 3) the effectiveness of EGG's educational tools. The format and questions of the survey were developed from lawn care surveys conducted in other cities (Minnesota Center for Survey Research, 1995; Virginia Cooperative Extension Service, 1985). Surveys were distributed to random samples of Edina households at the start and completion of the project. The first survey (Survey 1a) was mailed in May 1996 to 800 households, and had a return rate of 68.6%. In May 1997 a second survey was mailed to two separate samples of households. Survey 2a was sent to the same addresses as the first survey, and had a 58% response rate. Survey 2b was sent to a new sample of 800 households, with 69% of these surveys returned. Surveys 2a and 2b were identical to 1a with the exception of two additional questions asking the respondent's familiarity with the EGG program and its various educational tools.

The results of the surveys and a comparison between the "before" and "after" groups of surveys were used to determine the effectiveness of the EGG program in influencing the lawn care knowledge and practices of Edina residents. Surveys 2a and 2b also rated the effectiveness of each educational tool. Chi squared distribution tests were used to compare the responses of survey 1a with surveys 2a and 2b. Each question was analyzed to determine if there was a significant difference in the proportions of responses between the first and second survey groups to twenty-eight multiple choice questions. Only five of the questions had significant differences in responses between the first and second survey groups. However, these differences cannot necessarily be linked to EGG. For example, significantly more 1a than 2a or 2b respondents indicated that they were satisfied with their lawn's appearance. Different environmental conditions during the 1996 and 1997 growing seasons may explain this result.

Lawn Care Knowledge and Practices

Examining the survey responses, even those without significant differences between survey groups, provides insight into which lawn care concepts Edina residents already seem to understand, and which concepts were still misunderstood even after the educational campaign. See Table 1.

Table 1. Frequencies of responses across all surveys to 11 lawn care knowledge and practices survey questions.

	Frequency (%)					
Q1. The single best time to fertilize a lawn is:	Spring	Summer	Fall	Don't Know		
Survey 1a	42.3	1.6	45.5	7.1		
Survey 2a	37.6	0.9	52.1	4.9		
Survey 2b	39.2	0.9	48.2	7.4		
Q2. The single best time to control broadleaf weeds is:	Spring	Summer	Fall	Don't Know		
Survey 1a	78.3	5.8	6.4	8.2		
Survey 2a	78.3	5.8	8.8	5.8		
Survey 2b	76.5	6.5	6.5	7.9		
Q3. Lawn clippings are:	Detrimental to the lawn	Of no value to the lawn	Equal to 1 fertilizer treatment	Don't Know		
Survey 1a	2.7	3.3	79.6	13.8		
Survey 2a	3.0	2.4	83.7	9.7		
Survey 2b	2.9	2.5	80.7	12.6		
Q4. The amount of fertilizer needed for a medium maintenance lawn is:	1 lb. N/1000 sq ft/yr	2 lb. N/1000 sq ft/yr	3 lb. N/1000 sq ft/yr	5 lb. N/1000 sq ft/yr	None	Don't Know
Survey 1a	10.7	4.9	4.6	2.2	1.3	75.8
Survey 2a	13.5	6.7	5.2	2.1	1.5	68.9
Survey 2b	11.4	6.1	3.2	2.7	1.4	72.4
Q5. Which of the following pests usually require control in Minnesota home lawns?(circle all that apply)	Insects	Weeds	Diseases	Don't Know		
Survey 1a	18.0	82.3	30.4	11.7		
Survey 2a	21.9	81.5	32.8	10.5		
Survey 2b	20.8	82.5	31.2	11.2		

Q6. My lawn clippings are usually:	Left on the Lawn	Put on Compost Pile	Bagged and Removed	Don't Know		
Survey 1a	66.3	6.4	23.5	0		
Survey 2a	69.3	5.8	20.0	0		
Survey 2b	74.7	4.2	16.1	0.4		
Q7. My lawn is usually fertilized in the: (circle all that apply)	Spring	Summer	Fall	Never	Don't Know	
Survey 1a	79.2	35.0	61.9	9.8	1.5	
Survey 2a	81.3	34.5	68.2	7.3	0.6	
Survey 2b	82.7	34.5	66.6	7.9	1.3	
Q8. What pesticides do you currently use on your lawn?(circle all that apply)	Herbicide	Insecticide	Fungicide	Other	None	Don't Know
Survey 1a	64.8	5.6	6.0	0.9	20.0	13.1
Survey 2a	60.3	5.2	6.4	3.4	21.9	14.2
Survey 2b	61.2	5.8	5.8	4.2	20.6	13.4
Q9. How often do you usually water your lawn?	Often	Regularly	Only When Dry	Never	Don't Know	
Survey 1a	14.6	17.3	60.8	5.8	0.5	
Survey 2a	16.7	31.8	47.0	2.4	0	
Survey 2b	20.6	29.8	44.0	3.8	0.2	
Q10. How often do you usually mow your lawn?	More Than 1/week	1/week	Less Than 1/week	Only When Long	Don't Know	
Survey 1a	12.9	68.3	5.5	11.7	0.2	
Survey 2a	8.2	70.2	7.1	13.1	0	
Survey 2b	7.9	73.8	6.7	10.5	0	
Q11. How short do you usually mow your lawn?	1 Inch or Less	1 to 2 Inches	2 to 3 Inches	3 to 4 Inches	Over 4 Inches	Don't Know
Survey 1a	0	31.1	51.0	12.8	0.2	4.0
Survey 2a	1.3	34.1	48.7	10.5	0.6	2.4
Survey 2b	0.5	27.4	51.1	13.9	0.7	4.9

Responses to Q3 and Q6 show one area of lawn care in which the majority of residents' knowledge and practices were in accordance with EGG's recommendations both before and after the educational campaign. The majority of respondent's to Q3 across all three surveys recognize that leaving grass clippings on the lawn is beneficial. Since the

majority of respondents from Q6 indicated that they do leave their clippings on the lawn, this is apparently one case in which the lawn care knowledge and practices were in synch.

For many of the questions in Table 1, the frequencies of responses tended to be similar across all three surveys, both before and after the educational campaign, but the majority of responses in each case were not necessarily in accordance with EGG's teachings. One question in which respondents were in agreement for an "incorrect" answer was Q2. During the educational campaign EGG emphasized fall as the best time to control perennial broadleaf weeds, but most respondents from all three surveys chose spring for this question. When and how much to fertilize the lawn was another commonly misunderstood concept. For Q1, the majority of respondents indicated that fall was the best time to fertilize the lawn. This is the "correct" response, and seems encouraging, except that almost as many respondents indicated that spring was the best time to fertilize. When asked in Q7 when they actually apply fertilizer to the lawn, the majority of respondents were still fertilizing in the spring, with fall a close second. The majority of responses to Q4, which asked how much fertilizer was needed for a medium maintenance lawn, received a majority of "don't know" responses across all survey groups. University of Minnesota publications recommend that medium maintenance lawns receive two fertilizer treatments, each with 1 lb. of nitrogen per 1000 sq. ft., and both applied in the fall (Mugaas, 1995). Since there was no significant increase in the number of respondents at the end of the program who knew how much fertilizer to use on the lawn, this is clearly another key area that would require greater emphasis in future educational efforts. Our findings concerning the lack of fertilizer "know-how" in Edina are supported by results from fertilizer use studies in the Twin Cities which concluded that homeowners generally are not following the recommendations of turfgrass specialists regarding fertilizer use (Schultz and Cooper, 1995; Creason and Runge, 1992).

Environmental Attitudes

Survey questions regarding environmental attitudes toward lawn care are presented in Table 2.

Table 2. Ranking of degree of respondents' agreement to statements related to the environmental impact of lawn inputs. Average rankings fall on a scale of 1 to 4 (1=Strongly Agree, 2=Agree, 3=Disagree, 4=Strongly Disagree).

Question	Average Rank		
	Survey 1a	Survey 2a	Survey 2b
Q12. Some weeds (10%) are OK in my lawn.	2.19	2.14	2.23
Q13. More weeds (25%) are OK in my lawn.	3.23	3.20	3.26
Q14. No weeds are my goal.	2.49	2.55	2.46
Q15. As long as my lawn is green, it's OK.	2.55	2.62	2.56
Q16. Pesticides are not harmful to the environment.	3.32	3.31	3.28
Q17. Pesticides are not harmful to public health.	3.32	3.35	3.33
Q18. Fertilizers are not harmful to the environment.	2.97	3.01	3.00
Q19. Fertilizers are not harmful to public health.	2.89	2.93	2.92
Q20. I am satisfied with my lawn's appearance.	2.13	2.29	2.25
Q21. A well-kept lawn increases property values.	1.65	1.66	1.61
Q22. A green, weed-free lawn is more important than my house being painted.	3.21	3.22	3.20
Q23. A green, weed-free lawn is more important than shade trees around my house.	3.17	3.20	3.16
Q24. Signs should be posted on public parks whenever fertilizer is applied.	1.76	1.72	1.77
Q25. Signs should be posted on public parks whenever pesticides are applied.	1.56	1.51	1.50
Q26. Homeowners should be required to post signs on their property whenever fertilizer is applied.	2.30	2.23	2.26
Q27. Homeowners should be required to post signs on their property whenever pesticides are applied.	2.04	1.98	1.93
Q28. Organic lawn care products are just as effective as inorganic products.	2.12	2.16	2.15

Responses across all three surveys were very consistent for all of these questions. Most respondents indicated some degree of weed tolerance, although 10% seemed to be the usual limit of acceptance. The majority of respondents viewed pesticides and, to a lesser extent, fertilizers, as potentially harmful to the environment and public health. A very strong majority favor posting signs in public parks whenever either of these inputs is used. A majority also favor posting signs on private property whenever pesticides are applied, but fewer think that signs are necessary when home lawns are fertilized. Nearly all

respondents agreed that a well-kept lawn increases property values, but most disagreed that the lawn was more important than the house's condition or the presence of other landscaping. Finally, a majority of respondents agreed that organic lawn care products are just as effective as inorganic products.

Effectiveness of EGG

In order to measure the effectiveness of each educational tool in the program, Surveys 2a and 2b had two additional questions (Table 3).

Table 3. Frequencies of responses from Survey 2a (same group as Survey 1a) and Survey 2b (random population) about familiarity with the EGG program.

Q29. Rate your familiarity with the EGG program	Frequency (%)								
	Very Familiar	Somewhat Familiar	Vaguely Familiar	Not At All Familiar					
Survey 2a	6.0a	24.2a	29.0a	39.9a					
Survey 2b	2.9	11.6	21.3	63.0					
Q30. Which of the following sources used as educational tools by EGG are you familiar with	Articles in Edina's AboutTown Magazine	Articles in Edina's SunCurrent Newspaper	EGG's Internet WWW Page	Public Seminar	Demon-stration Sites	Word of Mouth	City Hall Open House	Other Sources (Write-in Response)	Not Familiar With the Program
Survey 2a	31.3	34.5	1.9	1.1	1.1	8.4	1.5	3.9	47.6
Survey 2b	22.9	21.5	0.9	1.4	0.7	5.6	0.2	0.9	66.6

a. Chi squared tests indicate a significant (0.001) difference in these responses. More 2a than 2b respondents were familiar with EGG.

44.7% of respondents from both surveys indicated that they were at least somewhat familiar with EGG. This term, as defined on the survey, meant that the respondent recognized the program's name and associated it with lawn care. Survey 2a respondents had received the survey at the start of the program, and it is probable that this influenced their familiarity.

Q30 asked respondents to indicate which of EGG's educational tools were familiar to them. Of those respondents who were familiar with the program, the majority from both survey populations cited the published articles as the most widely used source of information. The *AboutTown* magazine and *SunCurrent* newspaper are delivered free to every household in Edina and were the best resources the project had for reaching a community-wide audience. Homeowner surveys conducted in other communities have asked respondents to rate their preferred methods for receiving information and have determined that printed materials, either from mailings or newspapers, are consistently preferred over other teaching methods (Lajeunesse, et. al., 1997; Minnesota Center for Survey Research, 1995). One interesting result from Q30 was the relative popularity of word of mouth as a source of information. The EGG program was unique in that it was initiated by residents within the community, and community organizations such as the Edina League of Women Voters continued to be involved in implementing the program in the community. The popularity of word of mouth as a source of information reflects the effectiveness and importance of community involvement in educational programs like EGG. The public seminar and open house were both well-attended events, but required those attending to actively seek the information being offered. Although popular events, these do not appear to have had much impact on a community-wide scale. The demonstration sites also did not have a significant impact on the community. At these 19 sites Master Gardeners mentored homeowners in implementing low-input lawn care techniques. This part of the program was the most successful tool for encouraging change in the participant's lawn care practices (Carpenter and Meyer, 1998b). It was effective as a

one-on-one educational tool, and carried out on a larger scale, with more publicity within the community, it could have the potential to be more widely influential.

In conclusion, the overall *similarity* in responses to surveys distributed at the start and end of the educational campaign indicates that there was little change in the lawn care knowledge, practices, or environmental attitudes of Edina residents during the year-long program. In some areas, such as management of grass clippings, this may be because positive practices were already adopted in the community. In other areas, such as knowing when and how much to fertilize the lawn, survey results indicated that further education is needed. The surveys also indicated that Edina residents are concerned about the environmental impact of lawn pesticides and fertilizers. Our findings suggest that repetitive, long-term education, using a variety of educational tools, and emphasizing "problem" areas as determined by survey results, are important components of an educational program.

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Edina Goes Green Part III: Low-Input Lawn Care Demonstration Sites, Pairing Master Gardener Mentors with Homeowners

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Additional index words. Sustainable turfgrass, community education.

Summary. Teams of Master Gardeners were paired with homeowners who volunteered their lawns for demonstration sites in Edina, Minnesota. The demonstration site project was one part of a year-long community-wide campaign to employ and evaluate a variety of educational tools used to teach low-input lawn care techniques. That is, using minimal amounts of inputs to maintain a healthy lawn. The demonstration site's objectives were aimed at promoting change in lawn care practices by 1) providing publicized locations where other community members could see low-input lawn care at work, and 2) providing individualized instruction to homeowners. Individualized instruction proved to be the project's most effective tool for promoting change in lawn care practices. Recommendations for using homeowner demonstration sites are given.

Over a one-year period from June 1996 through June 1997, the University of Minnesota Extension Service worked in partnership with the City of Edina, Minnesota, on a low-input lawn care education project. The project's objective was to bring about a change in the lawn care practices of Edina residents by teaching them about low-input lawn care. Edina, a south-western suburb of Minneapolis, Minnesota has a population of approximately 46,000 people, with about 19,860 households (South Hennepin Regional Planning Agency, 1993).

In recent years, public attitude toward pesticide use has become an issue among communities and government, and the use of pesticides by the public has been steadily declining since the 1980s (Aspelin, 1997; Dana, et. al., 1995; van Ravenswaay, 1995). The project in Edina began with a group of residents protesting the use of lawn pesticides in the city's public parks. A temporary moratorium on all chemical pesticides on city property led to the development of a Turf Management Plan for the city, banning the use of pesticides on playgrounds and severely limiting their use on playing fields and other public lands (Edina Park and Recreation Department, 1995). The residents of Edina who had supported this new turf management plan on city property next turned their attention to residential properties.

Working with the University of Minnesota Extension Service, Edina City Hall, the League of Women Voters of Edina, and other community leaders, a year-long education program called Edina Goes Green (EGG) was implemented. This program sought to bring about change by teaching Edina's residents about low-input lawn care techniques using a variety of educational tools (Carpenter and Meyer, 1998a). In one aspect of the project, Master Gardeners (MGs) were involved in the establishment of Demonstration Sites at 19 locations throughout the city. MGs, volunteers trained by the Extension Service to extend horticulture information to the public, work in a wide variety of projects teaching horticulture (Meyer, 1997; Pottorff and Brown, 1994).

The Demonstration Site project had two main goals within the EGG program: 1) to provide a one-on-one educational opportunity for the homeowner, and 2) to educate the community at large by providing locations where residents could see the results of low-input lawn care at work. A third result, which was not originally planned, affected the MGs themselves and provided a practical learning experience for these Extension Service volunteers.

Sixteen Hennepin County MG volunteers signed up for the program. The MGs were paired to work in 8 teams, with each team assigned two or three demonstration site locations. Following the 1996 growing season, four MGs left the program and their sites were shifted to others. By the project's end, twelve MGs were still involved; ten working in pairs and two working alone.

The League of Women Voters of Edina recruited volunteers from within their organization to offer their lawns as demonstration site locations. Twenty-two households signed up for the program. An information sheet was mailed to each volunteer household explaining the project's goals and what would be expected of the participants. It was also reiterated that by participating in the project, the homeowners agreed to have their addresses publicized to the community at large. Three households decided that they did not meet the requirements, thus nineteen households participated for the entire year.

To meet the program objective of educating the community, the addresses of the demonstration site locations were published in Edina's community magazine, *AboutTown*, on the EGG internet web site, and on fliers posted in public buildings.

Three meetings were held with the MGs during the program. The first, in May of 1996, was an orientation session. At this time, the MGs met their partners and were given the addresses to their sites. The goals of the EGG program, teaching low-input lawn care techniques, were outlined, as well as the role of the demonstration sites within the overall program. MGs were supplied with survey and site evaluation forms to be completed for each site, and the protocol for the program was discussed. The MGs also visited two sites as a group to practice their site analysis skills and to help ensure that the techniques and standards used would be uniform for all participants.

The MGs were to visit each site monthly, evaluate the site, and make recommendations for low-input lawn care strategies appropriate for the level of lawn maintenance that the homeowner wished to practice on the site. The lawn care recommendations were to be based on the information in the Hennepin County Extension Bulletin, *LILaC: Low-Input Lawn Care* (Mugaas, 1995).

At two subsequent meetings, in July and September of 1996, the MGs and project organizers discussed the sites and made group recommendations for management of specific sites. These meetings were intended to assist the MGs in conducting site analyses and to help assure that the recommendations being made were in accordance with the techniques outlined in the LILaC Bulletin. Other information and updates on the program were shared through letters sent to MGs and site participants.

Surveys and program evaluation questionnaires were used to determine if the project's goals were met. At the end of the EGG program, in May 1997, surveys were mailed to a random sample of 1600 Edina homeowners. 64% of the surveys were returned. The survey asked questions regarding lawn care knowledge, practices, and environmental attitudes with respect to lawn care and lawn inputs (Carpenter and Meyer, 1998b). The

survey also asked two questions related to the EGG program specifically (Table 1). In response to the question, "Rate your familiarity with the EGG program", 53% indicated that they were not at all familiar with the program and 47% indicated at least a vague familiarity. The next question asked respondents to indicate which of EGGs educational tools were familiar to them. Of those respondents who had indicated a familiarity with the EGG Program, less than 1% indicated that they were familiar with the demonstration site project specifically. These results suggest that the demonstration site concept, as employed in this study, was not very effective as an educational tool for the community.

Table 1. Frequencies of survey responses to questions about familiarity with the EGG program.

Survey Question	Frequency (%)								
	Very Familiar	Somewhat Familiar	Vaguely Familiar	Not At All Familiar					
Rate your familiarity with the EGG program.	4.4	17.5	25.1	53.0					
	Articles in Edina's AboutTown Magazine	Articles in Edina's SunCurrent Newspaper	EGG's Internet WWW Page	Public Seminar	Demon-stration Sites	Word of Mouth	City Hall Open House	Other Sources (Write-in Response)	Not Familiar With the Program
Which of the following sources used as educational tools by EGG are you familiar with?	21.3	21.9	1.1	1.0	0.7	5.5	0.6	1.8	46.1

The homeowners who participated in the demonstration site project also received the lawn care survey. 42% of these surveys were returned (N=8). As a sub-group these responses were compared to those from the general population. This comparison was used to help determine if the demonstration site project achieved its goal of providing one-on-one lawn care education. Comparisons in the frequencies of certain responses do suggest that the project was effective as a one-on-one teaching tool (Table 2).

Table 2. Comparison of frequencies of responses of the general public and demonstration site participants to selected survey questions about lawn care knowledge and practices.

Survey Question	Frequency (%)	
	General Public	Demonstration Sites
Q1. The single best time to fertilize a lawn is:		
Spring	40.2	25.0
Summer	0.9	0
Fall	52.3	75.0
Don't Know	6.5	0
Q2. The single best time to control broadleaf weeds is:		
Spring	78.9	87.5
Summer	6.3	0
Fall	7.7	12.5
Don't Know	7.1	0
Q3. Lawn clippings are:		
Detrimental to the lawn	3.0	0
Of no value to the lawn	2.5	0
Equal to 1 fertilizer treatment if left on the lawn	83.1	87.5
Don't Know	11.4	12.5
Q4. The amount of fertilizer needed for a medium maintenance lawn is:		
1 lb N per 1000 sq ft per yr	12.7	25.0
2 lb N per 1000 sq ft per yr	6.5	25.0
3 lb N per 1000 sq ft per yr	4.2	0
5 lb N per 1000 sq ft per yr	2.5	0
None	1.5	0
Don't Know	72.6	50.0
Q6. My lawn clippings are usually:		
Left on the lawn	75.9	100
Composted	5.1	0
Bagged and Removed	18.7	0
Don't Know	0.2	0
Q7. My lawn is usually fertilized in the: (Choose all that apply)		
Spring	82.1	75.0
Summer	34.5	0
Fall	67.4	75.0
Never	7.6	12.5
Don't Know	1.0	0

For example, in response to Q1, asking when is the best time to fertilize the lawn, 75% of the demonstration site group chose the preferred response, "Fall", compared to 52.3% from the community-wide response group. There was also some improvement in the demonstration site group's responses to Q4, which asked the *amount* of fertilizer needed. More demonstration site respondents (25%) chose the preferred answer, 2 lb. N per 1000 sq ft per year. In the overall community just 6.5% chose this response. Interestingly, this question brought in the greatest percentage of "Don't Know" responses across all survey groups, but the frequency of "Don't Knows" in the demonstration site sub-group was just 50%, down from 72.6% from the general population.

In other questions, though, the effects of one-on-one mentoring were not as apparent. Q2 asked when is the single best time to control broadleaf weeds. Here, a greater percentage of demonstration site respondents (87.5%) than respondents from the community (78.9%) chose "Spring", which was not the preferred answer. On the other hand, the preferred response, "Fall", was still chosen more frequently by the demonstration site group (12.5%) than in the overall community (7.7%).

Program evaluation questionnaires were distributed to both the MGs and the homeowners at the end of the demonstration site project. Although only eight homeowners and four MGs returned completed questionnaires, they were evaluated to get feedback on the program and to help determine if the project had met its goal as an effective one-on-one teaching tool. The questionnaires consisted of open-ended questions asking the respondent's opinion about various aspects of the program and what, if anything, they gained through their participation. 75% of the homeowners indicated that they learned something about lawn care that they hadn't known before the program, and that they had changed their lawn care practices in some way as a result of what they learned. 100% also described the MGs as helpful and said that the MGs had taken their concerns into consideration when making suggestions. Of the MG respondents, 100% indicated that the

participants were open to the advice they gave and 50% knew for certain that the homeowners had put their advice to use.

Other questions on the evaluations sought to critique the overall program. Half of the respondents, five participants and one MG, thought the program was too short. Only one respondent, a MG, found the program too long, and all others (41.7%) were satisfied with the length of the program.

When asked for recommendations to improve the program, two main concerns were brought up by both the participants and the MGs. Both groups suggested having meetings with all participants so that the homeowners could share their experiences and learn what was happening at other sites. They both also stressed that the goals of the program needed more clarification. The role of the MGs was not always clear, some had very little contact with the homeowners while others were being asked to help with landscape problems that were outside of the scope of the project.

In response to questions asking what the best and worst parts of the program were, 75% of the MG respondents said that meeting and working with the homeowners was the most rewarding part of the program. The opportunity to learn and put into practice the things they had learned in training was also mentioned by 50% of the MGs. 37.5% of the homeowners' responses mentioned having a MG to talk to as the best part of the program. The other 62.5% focused on how much they learned and their increased involvement in lawn care activities. The biggest problem the MGs had with the program involved scheduling, both in coordinating with their partners, and in meeting with the homeowners.

In conclusion, the suggestions made by the participants in the program, both MG and homeowner, help point out areas for improvement in meeting the project objectives. Recommendations for future projects involving homeowner demonstration sites should include: 1) Increase publicity to improve community awareness of the program. Posting signs on the sites labeling them as low-input lawn care demonstration sites would draw the attention of passers-by, and published announcements including a map showing the

locations of the sites would also help to attract community members. Sponsoring an event such as an open-house would help draw the public to the sites by offering an opportunity to meet and talk to the homeowners and MGs. 2) Schedule meetings with homeowners and MGs to share experiences and offer additional lawn care information. 3) Lengthen the program beyond one year to allow for further one-on-one training and for the community to learn of the sites. 4) Use questionnairres to obtain periodic feedback while the program is in progress, and make necessary changes to emphasize topics that are not well understood. 5) Provide participants with an information "kit", including copies of relevant factsheets, a soil test kit, site evaluation forms, and general information about the project. Outlining a step-by-step approach will aid in providing a uniform experience for all volunteers and will clarify the goals of the project and the MG's role as a mentor.

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APPENDIX

Surveys.....34

Survey 1a and Frequencies of Responses
Mailed May 1996 to a random sample of Edina households
Survey 2a and Frequencies of Responses
Mailed May 1997 to the same households as Survey 1a
Survey 2b and Frequencies of Responses
Mailed May 1997 to a random sample of Edina households

Demonstration Site Evaluation Questionnaires.....40

Homeowner Questionnaire
Master Gardener Questionnaire

Demonstration Site Forms.....42

Master Gardener Information Sheet
Homeowner Information Sheet
Homeowner Survey
Site Evaluation Worksheet
Homeowner Maintenance Record

MINNESOTA EXTENSION SERVICE

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Survey 1a

800 Distributed
549 (68.6%) Returned

May 10, 1996

Dear Edina Resident and Homeowner,

The City of Edina in cooperation with the University of Minnesota and Minnesota Extension Service is introducing an educational program called Edina Goes Green (EGG). This program is designed to teach Edina residents about sustainable urban landscapes and will focus on the lawn care practices of homeowners.

As part of this program we are asking a small randomly selected sample of Edina households to help by completing the enclosed survey. The results of the survey will be used to target specific areas to focus on in our educational campaign and to evaluate the effectiveness of the EGG program. In order that the results will truly represent the thinking of the people in Edina, it is important that each questionnaire be completed and returned.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire.

The EGG program and this survey are being funded through a grant from the Minnesota Extension Service. We welcome any questions you might have regarding the survey or the EGG program. The program is being coordinated by Perrin Carpenter, a graduate student intern from the University of Minnesota. Questions may be addressed to Perrin at Edina City Hall on Tuesdays and Thursdays from 9:00am to 12:00pm. The telephone number is (612) 927-8861 ext. 205.

I hope that you will take a few minutes to help in our evaluation by completing the questionnaire and returning it in the postage-paid envelope provided. Thank you in advance for your time and assistance.

Sincerely,

Mary H. Meyer
Extension Horticulturist

EDINA GOES GREEN LAWN CARE SURVEY

The following survey asks questions about lawn care knowledge, lawn maintenance practices, and environmental impacts and attitudes toward lawn care. Please read each question and circle the response closest to your opinion. Unless otherwise noted, please circle only one response per question.

Lawn Care Knowledge

Q1. The single best time to fertilize a lawn is:

Frequencies:
232 1. spring
9 2. summer
250 3. fall
39 4. don't know

Q2. The single best time to control broadleaf weeds such as dandelions is:
430 1. spring
32 2. summer
35 3. fall
45 4. don't know

Q3. Lawn clippings are:
15 1. detrimental to the lawn
18 2. of no value to the lawn
437 3. the equivalent of 1 fertilizer application if left all year on the lawn
76 4. don't know

Q4. The amount of fertilizer needed for a medium maintenance lawn is:
59 1. 1 pound of nitrogen per 1000 square feet per year
27 2. 2 pounds " " " " " " "
25 3. 3 pounds " " " " " " "
12 4. 5 pounds " " " " " " "
7 5. none
416 6. don't know

Q5. Which of the following pests usually require control in Minnesota home lawns: (Please circle all that apply)
99 a. insects
452 b. weeds
167 c. diseases
64 d. don't know

Lawn Maintenance Practices

Q6. My lawn clippings are usually:
364 1. left on the lawn
35 2. put on the compost pile
129 3. bagged and removed from my property
0 4. don't know

Q7. My lawn is usually fertilized in the: (Please circle all that apply)
435 a. spring
192 b. summer
340 c. fall
54 d. never
8 e. don't know

Q8. What pesticides do you currently use on your lawn? (Please circle all that apply)
356 a. herbicides / weed killer
31 b. insecticides / insect killer
33 c. fungicides / disease killer
5 d. other (Specify:_____)
110 e. none
72 f. don't know

Q9. How often do you usually water your lawn?

80 1. often, automatic irrigation
95 2. regularly, with hose and sprinklers
334 3. only when it gets really dry
32 4. never
3 5. don't know

Q10. How often do you usually mow your lawn?

71 1. more than once per week
375 2. once per week
30 3. less than once per week
64 4. only when it gets noticeably long
1 5. don't know

Q11. How short do you usually mow your lawn?

0 1. leave 1 inch or less
171 2. leave between 1 and 2 inches
280 3. leave between 2 and 3 inches
70 4. leave between 3 and 4 inches
1 5. leave over 4 inches
22 6. don't know

Environmental Impacts and Attitudes

For the following questions on a scale of 1 to 4, with 1 meaning "Strongly Agree" and 4 meaning "Strongly Disagree", please indicate your opinion about the statement by circling the appropriate number.

	Strongly Agree	Agree	Disagree	Strongly Disagree
Q12. Some weeds (10%) are okay in my lawn.	112 1	236 2	119 3	49 4
Q13. More weeds (25%) are okay in my lawn.	26 1	41 2	249 3	220 4
Q14. No weeds are my goal.	94 1	186 2	161 3	97 4
Q15. As long as my lawn is green, it's okay.	38 1	219 2	222 3	56 4
Q16. Pesticides are not harmful to the environment.	8 1	33 2	273 3	223 4
Q17. Pesticides are not harmful to public health.	8 1	44 2	251 3	232 4
Q18. Fertilizers are not harmful to the environment.	9 1	130 2	263 3	131 4
Q19. Fertilizers are not harmful to public health.	11 1	150 2	247 3	116 4
Q20. I am satisfied with my lawn's appearance.	64 1	350 2	119 3	8 4
Q21. A well-kept lawn increases property values.	212 1	314 2	13 3	5 4
Q22. A green, weed-free lawn is more important than my house being painted.	2 1	19 2	383 3	136 4
Q23. A green, weed-free lawn is more important than shade trees around my house.	2 1	52 2	339 3	151 4
Q24. Signs should be posted on public parks whenever fertilizer is applied.	204 1	275 2	58 3	7 4

	Strongly Agree		Agree		Disagree		Strongly Disagree	
Q25. Signs should be posted on public parks whenever pesticides are applied.	274	1	246	2	21	3	6	4
Q26. Homeowners should be required to post signs on their property whenever fertilizer is applied.	117	1	184	2	198	3	40	4
Q27. Homeowners should be required to post signs on their property whenever pesticides are applied.	163	1	222	2	121	3	31	4
Q28. Organic lawn care products are just as effective as inorganic products.	73	1	311	2	109	3	13	4

Please answer the following questions about yourself. This information will be used only to compare people's answers. It will not be used to identify you in any way.

Q29. Are you male or female?

309 1. male
233 2. female

Q30. How many people in the following age groups are in your household?

	Number of People	totals:
a. Persons 65 years or older	_____	153
b. Adults, 20-64 years	_____	434
c. Teenagers, 13-19 years	_____	111
d. Children, 12 years or younger	_____	161

Q31. How many years have you lived in Edina?

_____years

Q32. How much do you spend to maintain your lawn per year? (total amount spent on fertilizers, pesticides, lawn care service, etc.)

16 1. less than $10.00
53 2. $10.00 to $25.00
91 3. $25.00 to $50.00
91 4. $50.00 to $100.00
82 5. $100.00 to $150.00
209 6. more than $150.00

Q33. I use a professional lawn care service to apply fertilizer and/or pesticides to my lawn.

224 1. yes
321 2. no

Q34. (Optional) Your answer to the following question will be used to help the Edina Goes Green committee tailor our educational campaign to your needs.
Do you have a question or problem about lawn care that you would like to see EGG address?

_____

_____

_____

Survey 2a
800 Distributed
466 (58%) Returned

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
Department of Horticultural Science
305 Alderman Hall
1970 Folwell Avenue
St. Paul, Minnesota 55108
(612) 624-5300
FAX: (612) 624-4941

May 1997

Dear Edina Resident and Homeowner,

Last spring your household was selected in a random sample of Edina residents to participate in an evaluation of Edina Goes Green, a community education program focused on the lawn care practices of homeowners.

The City of Edina in cooperation with the University of Minnesota and Minnesota Extension Service developed this program over the past year to teach residents about low-input lawn care techniques. We are now evaluating the effectiveness of our educational methods, and are asking those residents who received our survey last year to complete the survey again.

In order that the results will truly represent the thinking of the people in Edina, it is important that each questionnaire be completed and returned. Even if you were unable to return last year's survey, your response to this survey would be greatly appreciated.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire.

The EGG program and this survey are being funded through a grant from the Minnesota Extension Service. We welcome any questions you might have regarding the survey or the EGG program. The program is being coordinated by Perrin Carpenter, a graduate student intern from the University of Minnesota. Questions may be addressed to Perrin at Edina City Hall. The telephone number is (612) 927-8861 ext. 205.

I hope that you will take a few minutes to help in our evaluation by completing the questionnaire and returning it in the postage-paid envelope provided. Thank you in advance for your time and assistance.

Sincerely,

Mary H. Meyer
Extension Horticulturist

EDINA GOES GREEN LAWN CARE SURVEY

The following survey asks questions about lawn care knowledge, lawn maintenance practices, and environmental impacts and attitudes toward lawn care. Please read each question and circle the response closest to your opinion. Unless otherwise noted, please circle only one response per question.

Lawn Care Knowledge

Q1. The single best time to fertilize a lawn is:

Frequencies:
175 1. spring
4 2. summer
243 3. fall
23 4. don't know

Q2. The single best time to control broadleaf weeds such as dandelions is:

365 1. spring
27 2. summer
41 3. fall
27 4. don't know

Q3. Lawn clippings are:

14 1. detrimental to the lawn
11 2. of no value to the lawn
390 3. the equivalent of 1 fertilizer application if left all year on the lawn
45 4. don't know

Q4. The amount of fertilizer needed for a medium maintenance lawn is:

63 1. 1 pound of nitrogen per 1000 square feet per year
31 2. 2 pounds " " " " " " "
24 3. 3 pounds " " " " " " "
10 4. 5 pounds " " " " " " "
7 5. none
321 6. don't know

Q5. Which of the following pests usually require control in Minnesota home lawns: (Please circle all that apply)

102 a. insects
380 b. weeds
153 c. diseases
49 d. don't know

Lawn Maintenance Practices

Q6. My lawn clippings are usually:

323 1. left on the lawn
27 2. put on the compost pile
93 3. bagged and removed from my property
0 4. don't know

Q7. My lawn is usually fertilized in the: (Please circle all that apply)

379 a. spring
161 b. summer
318 c. fall
34 d. never
3 e. don't know

Q8. What pesticides do you currently use on your lawn? (Please circle all that apply)

281 a. herbicides / weed killer
24 b. insecticides / insect killer
30 c. fungicides / disease killer
16 d. other (Specify:_____)
102 e. none
66 f. don't know

Q9. How often do you usually water your lawn?

78 1. often, automatic irrigation
148 2. regularly, with hose and sprinklers
219 3. only when it gets really dry
11 4. never
0 5. don't know

Q10. How often do you usually mow your lawn?

38 1. more than once per week
327 2. once per week
33 3. less than once per week
61 4. only when it gets noticeably long
0 5. don't know

Q11. How short do you usually mow your lawn?

6 1. leave 1 inch or less
159 2. leave between 1 and 2 inches
227 3. leave between 2 and 3 inches
49 4. leave between 3 and 4 inches
3 5. leave over 4 inches
11 6. don't know

Environmental Impacts and Attitudes

For the following questions on a scale of 1 to 4, with 1 meaning "Strongly Agree" and 4 meaning "Strongly Disagree", please indicate your opinion about the statement by circling the appropriate number.

	Strongly Agree	Agree	Disagree	Strongly Disagree
Q12. Some weeds (10%) are okay in my lawn.	110 1	262 2	119 3	28 4
Q13. More weeds (25%) are okay in my lawn.	13 1	52 2	224 3	167 4
Q14. No weeds are my goal.	61 1	176 2	126 3	94 4
Q15. As long as my lawn is green, it's okay.	42 1	140 2	220 3	50 4
Q16. Pesticides are not harmful to the environment.	6 1	36 2	224 3	189 4
Q17. Pesticides are not harmful to public health.	2 1	32 2	224 3	191 4
Q18. Fertilizers are not harmful to the environment.	4 1	99 2	234 3	112 4
Q19. Fertilizers are not harmful to public health.	8 1	121 2	211 3	107 4
Q20. I am satisfied with my lawn's appearance.	41 1	254 2	146 3	14 4
Q21. A well-kept lawn increases property values.	173 1	279 2	9 3	3 4
Q22. A green, weed-free lawn is more important than my house being painted.	5 1	16 2	311 3	126 4
Q23. A green, weed-free lawn is more important than shade trees around my house.	9 1	28 2	288 3	137 4
Q24. Signs should be posted on public parks whenever fertilizer is applied.	178 1	239 2	39 3	4 4
Q25. Signs should be posted on public parks whenever pesticides are applied.	247 1	201 2	13 3	4 4
Q26. Homeowners should be required to post signs on their property whenever fertilizer is applied.	111 1	169 2	141 3	37 4

	Strongly Agree	Agree	Disagree	Strongly Disagree
Q27. Homeowners should be required to post signs on their property whenever pesticides are applied.	152 1	192 2	92 3	25 4
Q28. Organic lawn care products are just as effective as inorganic products.	55 1	258 2	105 3	10 4

About Edina Goes Green

Q29. Rate your familiarity with the Edina Goes Green program.

28 1. very familiar - recognize the name and associate it with low-input lawn care education
113 2. somewhat familiar - recognize the name and associate it with lawn care
135 3. vaguely familiar - recognize the name, but don't know what it is about
186 4. not at all familiar - don't recognize the name or the program's objectives

Q30. Following are some sources of information that Edina Goes Green has used as educational tools for teaching about low-input lawn care. Which of these sources are you or anyone in your household familiar with, whether or not you have used the source personally: (Please circle all that apply)

146 a. Articles in Edina's AboutTown Magazine
161 b. Articles in the Edina Sun Current newspaper
9 c. Edina Goes Green's WWW page
5 d. Public Seminar - Lawn Care for the 90s; A Pinch Not a Pound. March, 1996.
5 e. Demonstration Sites
39 f. Word of mouth - heard about program from a friend or neighbor
7 g. Open House at City Hall
18 h. Other_____
222 i. Not familiar with the program at all

Please answer the following questions about yourself. This information will be used only to compare people's answers. It will not be used to identify you in any way.

Q31. Are you male or female?

248 1. male
213 2. female

Q32. How many people in the following age groups are in your household?

	Number of People	totals:
a. Persons 65 years or older	_____	143
b. Persons 20-64 years	_____	349
c. Teenagers, 13-19 years	_____	98
d. Children, 12 years or younger	_____	132

Q33. How many years have you lived in Edina?

_____years

Q34. How much do you spend to maintain your lawn per year? (total amount spent on fertilizers, pesticides, lawn care service, etc.)

14 1. less than $10.00
45 2. $10.00 to $25.00
54 3. $25.00 to $50.00
90 4. $50.00 to $100.00
73 5. $100.00 to $150.00
181 6. more than $150.00

Q35. I use a professional lawn care service to apply fertilizer and/or pesticides to my lawn.

197 1. yes
266 2. no

Survey 2b
800 Distributed
554 (69%) Returned

MINNESOTA EXTENSION SERVICE

UNIVERSITY OF MINNESOTA
Department of Horticultural Science
305 Alderman Hall
1970 Folwell Avenue
St. Paul. Minnesota 55108
(612) 624-5300
FAX: (612) 624-4941

May 1997

Dear Edina Resident and Homeowner,

The City of Edina in cooperation with the University of Minnesota and Minnesota Extension Service has introduced an educational program called Edina Goes Green (EGG). This program is designed to teach Edina residents about sustainable urban landscapes and is focused on the lawn care practices of homeowners.

As part of this program we are asking a small randomly selected sample of Edina households to help by completing the enclosed survey. The results of the survey will be used to evaluate the effectiveness of the EGG program. In order that the results will truly represent the thinking of the people in Edina, it is important that each questionnaire be completed and returned.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire.

The EGG program and this survey are being funded through a grant from the Minnesota Extension Service. We welcome any questions you might have regarding the survey or the EGG program. The program is being coordinated by Perrin Carpenter, a graduate student intern from the University of Minnesota. Questions may be addressed to Perrin at Edina City Hall. The telephone number is (612) 927-8861 ext. 205.

I hope that you will take a few minutes to help in our evaluation by completing the questionnaire and returning it in the postage-paid envelope provided. Thank you in advance for your time and assistance.

Sincerely,

Mary H. Meyer
Extension Horticulturist

EDINA GOES GREEN LAWN CARE SURVEY

The following survey asks questions about lawn care knowledge, lawn maintenance practices, and environmental impacts and attitudes toward lawn care. Please read each question and circle the response closest to your opinion. Unless otherwise noted, please circle only one response per question.

Lawn Care Knowledge

Q1. The single best time to fertilize a lawn is:

Frequencies:
217 1. spring
5 2. summer
267 3. fall
41 4. don't know

Q2. The single best time to control broadleaf weeds such as dandelions is:
424 1. spring
36 2. summer
36 3. fall
44 4. don't know

Q3. Lawn clippings are:
16 1. detrimental to the lawn
14 2. of no value to the lawn
447 3. the equivalent of 1 fertilizer application if left all year on the lawn
70 4. don't know

Q4. The amount of fertilizer needed for a medium maintenance lawn is:
63 1. 1 pound of nitrogen per 1000 square feet per year
34 2. 2 pounds " " " " " " "
18 3. 3 pounds " " " " " " "
15 4. 5 pounds " " " " " " "
8 5. none
401 6. don't know

Q5. Which of the following pests usually require control in Minnesota home lawns: (Please circle all that apply)
115 a. insects
457 b. weeds
173 c. diseases
62 d. don't know

Lawn Maintenance Practices

Q6. My lawn clippings are usually:
414 1. left on the lawn
23 2. put on the compost pile
89 3. bagged and removed from my property
2 4. don't know

Q7. My lawn is usually fertilized in the: (Please circle all that apply)
458 a. spring
191 b. summer
369 c. fall
44 d. never
7 e. don't know

Q8. What pesticides do you currently use on your lawn? (Please circle all that apply)
339 a. herbicides / weed killer
32 b. insecticides / insect killer
32 c. fungicides / disease killer
23 d. other (Specify:_____)
114 e. none
74 f. don't know

Q9. How often do you usually water your lawn?

114 1. often, automatic irrigation
165 2. regularly, with hose and sprinklers
244 3. only when it gets really dry
21 4. never
1 5. don't know

Q10. How often do you usually mow your lawn?

44 1. more than once per week
409 2. once per week
37 3. less than once per week
58 4. only when it gets noticeably long
0 5. don't know

Q11. How short do you usually mow your lawn?

3 1. leave 1 inch or less
152 2. leave between 1 and 2 inches
283 3. leave between 2 and 3 inches
77 4. leave between 3 and 4 inches
4 5. leave over 4 inches
27 6. don't know

Environmental Impacts and Attitudes

For the following questions on a scale of 1 to 4, with 1 meaning "Strongly Agree" and 4 meaning "Strongly Disagree", please indicate your opinion about the statement by circling the appropriate number.

	Strongly Agree	Agree	Disagree	Strongly Disagree
Q12. Some weeds (10%) are okay in my lawn.	100 1	273 2	125 3	50 4
Q13. More weeds (25%) are okay in my lawn.	11 1	63 2	239 3	226 4
Q14. No weeds are my goal.	95 1	194 2	155 3	95 4
Q15. As long as my lawn is green, it's okay.	28 1	241 2	206 3	60 4
Q16. Pesticides are not harmful to the environment.	13 1	61 2	226 3	241 4
Q17. Pesticides are not harmful to public health.	4 1	52 2	247 3	236 4
Q18. Fertilizers are not harmful to the environment.	6 1	127 2	265 3	139 4
Q19. Fertilizers are not harmful to public health.	4 1	155 2	255 3	118 4
Q20. I am satisfied with my lawn's appearance.	46 1	336 2	145 3	19 4
Q21. A well-kept lawn increases property values.	226 1	314 2	9 3	1 4
Q22. A green, weed-free lawn is more important than my house being painted.	3 1	24 2	379 3	136 4
Q23. A green, weed-free lawn is more important than shade trees around my house.	5 1	53 2	335 3	151 4
Q24. Signs should be posted on public parks whenever fertilizer is applied.	216 1	250 2	73 3	9 4
Q25. Signs should be posted on public parks whenever pesticides are applied.	296 1	234 2	16 3	3 4
Q26. Homeowners should be required to post signs on their property whenever fertilizer is applied.	135 1	180 2	191 3	44 4

	Strongly Agree	Agree	Disagree	Strongly Disagree
Q27. Homeowners should be required to post signs on their property whenever pesticides are applied.	199 1	208 2	121 3	21 4
Q28. Organic lawn care products are just as effective as inorganic products.	54 1	329 2	103 3	12 4

About Edina Goes Green

Q29. Rate your familiarity with the Edina Goes Green program.

16 1. very familiar - recognize the name and associate it with low-input lawn care education
64 2. somewhat familiar - recognize the name and associate it with lawn care
118 3. vaguely familiar - recognize the name, but don't know what it is about
349 4. not at all familiar - don't recognize the name or the program's objectives

Q30. Following are some sources of information that Edina Goes Green has used as educational tools for teaching about low-input lawn care. Which of these sources are you or anyone in your household familiar with, whether or not you have used the source personally: (Please circle all that apply)

127 a. Articles in Edina's AboutTown Magazine
119 b. Articles in the Edina Sun Current newspaper
5 c. Edina Goes Green's WWW page
8 d. Public Seminar - Lawn Care for the 90s; A Pinch Not a Pound. March, 1996.
4 e. Demonstration Sites
31 f. Word of mouth - heard about program from a friend or neighbor
1 g. Open House at City Hall
5 h. Other_____
369 i. Not familiar with the program at all

Please answer the following questions about yourself. This information will be used only to compare people's answers. It will not be used to identify you in any way.

Q31. Are you male or female?

294 1. male
252 2. female

Q32. How many people in the following age groups are in your household?

	Number of People	totals:
a. Persons 65 years or older	_____	142
b. Persons 20-64 years	_____	441
c. Teenagers, 13-19 years	_____	118
d. Children, 12 years or younger	_____	168

Q33. How many years have you lived in Edina?

_____years

Q34. How much do you spend to maintain your lawn per year? (total amount spent on fertilizers, pesticides, lawn care service, etc.)

16 1. less than $10.00
53 2. $10.00 to $25.00
78 3. $25.00 to $50.00
86 4. $50.00 to $100.00
87 5. $100.00 to $150.00
224 6. more than $150.00

Q35. I use a professional lawn care service to apply fertilizer and/or pesticides to my lawn.

240 1. yes
306 2. no

EDINA GOES GREEN DEMONSTRATION SITE EVALUATION

Name (Optional)_____

1. Was the length of the program adequate? Too long? Too short?

2. What recommendations do you have for improving the program?

3. What was the best thing about the program for you?

4. What was the biggest problem you encountered in the program?

5. Did you learn something about lawn care that you didn't know before?

6. Did you change your lawn care practices? If so, how?

7. Were the Master Gardeners helpful? Did you understand their suggestions? Were they able to answer your questions?

8. Did the Master Gardeners take your concerns into consideration when making suggestions?

9. Was the amount of contact with the Master Gardeners adequate? Would you have liked to have had either more or less contact?

10. Please make any other comments in the space below or on the back.

THANK YOU FOR YOUR COMMENTS!

EDINA GOES GREEN DEMONSTRATION SITE EVALUATION

Name _____

Sites You Worked On _____
_____
_____
_____

1. Was the length of the program adequate? Too long? Too short?

2. What recommendations do you have for improving the program?

3. What was the best thing about the program for you?

4. What was the biggest problem you encountered in the program?

5. Did you work singly or as part of a Master Gardener team? Did this arrangement work well or would you have preferred another arrangement?

6. Was the amount of contact with the participants adequate? Would you have preferred more or less contanct?

7. Were the participants open to your advice? Did they seem to use your advice?

8. Please make any other comments in the space below or on the back.

THANK YOU FOR YOUR COMMENTS!

Master Gardener Information Sheet

One of the goals of Edina Goes Green is to educate Edina homeowners about ways to reduce lawn and yard inputs without compromise to the aesthetic or functional quality of the landscape. As Master Gardeners working one-on-one with the participants of our Demonstration Site Project, you will be helping us to achieve this goal. Your job in this respect will be to educate the homeowners who you will be working with about the ways that they can reduce the inputs on their own yards. To do this you will:

- Survey the homeowner to determine their level of knowledge of lawn care, their level of tolerance for "imperfections" in their yard, and the history of the site's maintenance.
- Provide Maintenance Record forms to the homeowners and explain how they are to be completed. These forms will later be collected and returned to the Project Coordinator.
- Evaluate the landscape to determine the types of vegetation present, their quality, the presence of any problem areas or environmentally sensitive areas, and anything else of significance to that property.
- Make suggestions for the property's management based on the results of the survey and evaluation.
- Perform periodic (monthly?) follow-up evaluations to monitor the level of quality of the property.
- Time Line: The project is scheduled to run through May of 1997.

Names and Addresses

Project Coordinator: All questions relating to the project may be addressed to:

Perrin Carpenter
EGG Project Coordinator
Edina Park and Recreation Department
4801 W. 50th Street
Edina, MN 55424
Phone numbers: (w) 927-8861 ext. 205 (h) 721-1953

Master Gardener Partner Information:

Name:

Phone Number:

Demonstration Sites Information:

Name:	Name:	Name:
Address:	Address:	Address:
Phone:	Phone:	Phone:

Homeowner Information Sheet

Dear Homeowner Volunteer,

Thank you for your participation in Edina Goes Green's Home Lawn and Landscape Demonstration Project. The objective of this project is to reduce lawn and yard inputs without significant compromise to the aesthetic and functional quality of the landscape.

Our Part

- A team of Master Gardeners will survey you and your home site and make suggestions for use of pesticides and fertilizer which will have minimal environmental impact.
- The Master Gardeners will perform an initial site evaluation and several follow-up evaluations throughout this growing season, and next spring through May of 1997.
- The Master Gardeners will be available to answer your lawn and landscape related questions, but will not redesign your landscape or provide labor to maintain your landscape.

The Master Gardeners who will be working with you are:

(1) Master Gardener Name

Phone #:

(2) Master Gardener Name

Phone #:

Other questions about Edina Goes Green or the Demonstration Site Project may be addressed to :

Perrin Carpenter
EGG Project Coordinator
Edina Park and Recreation Department
4801 W. 50th Street
Edina, MN 55424
927-8861 ext. 205

Your Part

- Complete the enclosed Record Sheets whenever maintenance tasks are performed on your yard. Instructions are given on the form for how to keep track of mowing, watering, fertilizer and pesticide use, and any other yard maintenance activities. Please also note the amount of time spent on the activity, and, where appropriate, information about the products used and the dollar amount spent on the activity. Additional Record Sheets may be obtained by contacting Perrin Carpenter at the address or phone number listed above.
- Call your Master Gardener team with any lawn and landscape related questions you may have.
- When you receive the maintenance suggestions from the Master Gardeners, you may decide to what extent you want to implement them.

Homeowner Survey

Homeowner Name		
Address		
(1) Master Gardener Name	(2) Master Gardener Name	Date of Visit

HISTORY

Age of Lawn	Was the Lawn Sodded?_____ Seeded?_____ Don't Know_____	Is a Lawn Service Used? No____ Yes____ Services?_____

Any Past or Current Problems?
With the Lawn_____
With Trees & Shrubs_____

Estimate Dollar Amount Spent per Year	Estimate Amount of Time Spent per Week
On Lawn_____	Mowing_____
On Trees & Shrubs_____	Other Yard Maintenance_____

Usual Number of Lawn Treatments per Year, and Time of Year They are Done
Fertilizer_____
Pesticides_____

CURRENT PRACTICES

Products Used This Year
On Lawn_____
On Trees & Shrubs_____

Mowing Height_____in. Mowing Frequency_____ _____	What is Done With Grass Clippings?	What is Done With Yard Waste?

Fertilizer & Pesticide Use:
(fill in the table with Never, Only as Needed, Regular Use, or Use Extensively)

	Fertilizer	Pesticide
Lawn:	_____	_____
Trees & Shrubs:	_____	_____

How Would You Treat Your Lawn for the Following Numbers of Dandelions:
(fill in each blank with either No Control, Hand Weeding, or Herbicide)
0-5_____ 5-10_____
10-20_____ more than 20_____

Do You Believe There are Effective Alternatives to Pesticides?

Site Evaluation Worksheet

Homeowner Name		
Address		
(1) Master Gardener Name	(2) Master Gardener Name	Date of Visit

LAWN EVALUATION

Lawn Size (Total Square Feet)	Lot Size	Soil Type

Grass Types:	Weed Types:
Bluegrass_____%	Broadleaf_____%
Fine-Leaf Fescue_____%	Grassy_____%
Ryegrass_____%	

Quality of Turf (Density & Color)	Grass Height (Measured)

Problem Areas (shade, slope, wet, weedy, etc.)

Environmentally Sensitive Areas (shoreline, slope, etc.)

TREE & SHRUB EVALUATION

General Condition

Present / Potential Problem Areas

GENERAL OBSERVATIONS (continue on reverse if needed)

GENERAL OBSERVATIONS (continued)

Homeowner Maintenance Record

Homeowner Name

Address

YARD MAINTENANCE ACTIVITY CODE KEY:

M = Mowing **W** = Watering **F** = Fertilizer Application
WK = Weed Killer Application **I** = Insecticide Treatment
D = Disease Treatment (Fungicide) **O** = Other

Instructions: Indicate the date of the activity, then circle all the codes (see key above) which apply to the activity(s) accomplished on that date. If "O" (Other) is selected, specify the activity in the blank provided to the right of the "O". Estimate the time spent on the activity(s) in the space after the "🕓". Indicate the location of the activity (lawn/trees/shrubs/etc.). Where appropriate, indicate the analysis (N-P-K) of fertilizer used, the brand name of any pesticides used, and the quantity applied. Also note the cost of the item(s) used after the "$".

Date	Activity					
	M 🕓_____					
	W 🕓_____	Loc._____				
	F 🕓_____	Loc._____	Analysis_____	Quant._____	$_____	
	WK 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	I 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	D 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	O_____					
	M 🕓_____					
	W 🕓_____	Loc._____				
	F 🕓_____	Loc._____	Analysis_____	Quant._____	$_____	
	WK 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	I 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	D 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	O_____					
	M 🕓_____					
	W 🕓_____	Loc._____				
	F 🕓_____	Loc._____	Analysis_____	Quant._____	$_____	
	WK 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	I 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	D 🕓_____	Loc._____	Brand_____	Quant._____	$_____	
	O_____					

Date	Activity					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					
	M					
	W	Loc.				
	F	Loc.	Analysis		Quant.	$
	WK	Loc.	Brand		Quant.	$
	I	Loc.	Brand		Quant.	$
	D	Loc.	Brand		Quant.	$
	O					